

AMENDMENT TO THE CLAIMS

Claims 1 - 4 (Cancelled)

5. (Currently Amended) A linear electrodynamic system comprising:
a housing;
a longitudinal shaft movably coupled to the housing to longitudinally and linearly reciprocate relative to the housing in the longitudinal direction of the shaft;
a stator rigidly coupled to the housing, the stator shaped to define an inner space to receive a portion of the longitudinal shaft, the stator having stator poles extending inwardly toward that portion of the longitudinal shaft received by the stator;
windings wound around the stator poles;
magnetic material affixed to a portion of each of the stator poles, the magnetic material having bore surfaces facing inward; and
a mover affixed to the shaft, the mover having bore surfaces facing outward in correspondence with the bore surfaces of the magnetic material to define a gaseous gap between each of the correspondingly positioned ones of the bore surfaces of the magnetic material and the mover, portions of the bore surfaces of the magnetic material being closer to the shaft than portions of the bore surfaces of the mover, the bore surface of each magnetic material affixed to a portion of one of the stator poles having a V shape. ~~The system of claim 4 wherein the bore surface of each magnetic material affixed to a portion of one of the stator poles havings a concave shape.~~

Claims 6 -7 (Cancelled)

8. (Currently Amended) A linear electrodynamic system comprising:
a housing;
a longitudinal shaft movably coupled to the housing to longitudinally and linearly reciprocate relative to the housing in the longitudinal direction of the shaft;

a stator rigidly coupled to the housing, the stator shaped to define an inner space to receive a portion of the longitudinal shaft, the stator having stator poles extending inwardly toward that portion of the longitudinal shaft received by the stator; windings wound around the stator poles; magnetic material affixed to a portion of each of the stator poles, the magnetic material having bore surfaces facing inward; and a mover affixed to the shaft, the mover having bore surfaces facing outward in correspondence with the bore surfaces of the magnetic material to define a gaseous gap between each of the correspondingly positioned ones of the bore surfaces of the magnetic material and the mover, portions of the bore surfaces of the magnetic material being closer to the shaft than portions of the bore surfaces of the mover, the bore surface of each magnetic material affixed to a portion of one of the stator poles having a parabolic shape. ~~The system of claim 7 wherein the bore surface of each magnetic material affixed to a portion of one of the stator poles havings a concave shape.~~

Claims 9 - 15 (Cancelled)

16. (Currently Amended) A linear electrodynamic system comprising:
a stator with inwardly extending stator poles, the stator defining an inner space with the stator poles positioned at the inner space;
windings wound around the stator poles;
magnetic material affixed to a portion of each of the stator poles, the magnetic material having bore surfaces facing inward toward the inner space; and
a mover positioned within the inner space for longitudinal and linear reciprocal movement therein, the mover having bore surfaces facing outward in correspondence with the bore surfaces of the magnetic material to define a gaseous gap between each of the correspondingly positioned ones of the bore surfaces of the magnetic material and the mover, the bore surfaces of the magnetic material and the mover having mating non-annular shapes, the bore surface of each magnetic material

affixed to a portion of one of the stator poles having a V shape. ~~The system of claim 15 wherein the bore surface of each magnetic material affixed to a portion of one of the stator poles has~~ing a concave shape.

Claims 17 - 18 (Cancelled)

19. (Currently Amended) A linear electrodynamic system comprising:
a stator with inwardly extending stator poles, the stator defining an inner space with the stator poles positioned at the inner space;
windings wound around the stator poles;
magnetic material affixed to a portion of each of the stator poles, the magnetic material having bore surfaces facing inward toward the inner space; and
a mover positioned within the inner space for longitudinal and linear reciprocal movement therein, the mover having bore surfaces facing outward in correspondence with the bore surfaces of the magnetic material to define a gaseous gap between each of the correspondingly positioned ones of the bore surfaces of the magnetic material and the mover, the bore surfaces of the magnetic material and the mover having mating non-annular shapes, the bore surface of each magnetic material affixed to a portion of one of the stator poles having a parabolic shape. ~~The system of claim 18 wherein the bore surface of each magnetic material affixed to a portion of one of the stator poles has~~ing a concave shape.

Claims 20 - 24 (Cancelled)

25. (New) A linear electrodynamic system comprising:
a housing;
a longitudinal shaft movably coupled to the housing to longitudinally and linearly reciprocate relative to the housing in the longitudinal direction of the shaft;
a stator rigidly coupled to the housing, the stator shaped to define an inner space to receive a portion of the longitudinal shaft, the stator having stator poles extending inwardly toward that portion of the longitudinal shaft received by the stator;

windings wound around the stator poles;
magnetic material affixed to a portion of each of the stator poles, the magnetic material having concave shaped bore surfaces facing inward; and
a mover affixed to the shaft, the mover having bore surfaces facing outward in correspondence with the concave shaped bore surfaces of the magnetic material to define a gaseous gap between each of the correspondingly positioned ones of the concave shaped bore surfaces of the magnetic material and the bore surfaces of the mover, portions of the concave shaped bore surfaces of the magnetic material being closer to the shaft than portions of the bore surfaces of the mover.

26. (New) A system for a linear alternator, the system comprising:
a stator shaped to define an inner space, the stator having stator poles extending inwardly toward the inner space, the stator poles having inwardly facing surfaces facing inwardly toward the inner space; and
magnetic material affixed to the inwardly facing surfaces of the stator poles, the magnetic material having concave v-shaped surfaces facing inwardly toward the inner space.

27. (New) A system for a linear alternator, the system comprising:
a stator shaped to define an inner space, the stator having stator poles extending inwardly toward the inner space, the stator poles having inwardly facing surfaces facing inwardly toward the inner space; and
magnetic material affixed to the inwardly facing surfaces of the stator poles, the magnetic material having concave shaped surfaces facing inwardly toward the inner space, each of the concave shaped surfaces having different radii of curvature for corresponding osculating circles tangent to different points on the concave shaped surface.

28. (New) A system for a linear alternator, the system comprising:
a stator shaped to define an inner space, the stator having stator poles extending inwardly toward the inner space, the stator poles having inwardly facing surfaces facing inwardly toward the inner space; and

magnetic material affixed to the inwardly facing surfaces of the stator poles, the magnetic material having concave shaped surfaces facing inwardly toward the inner space, at least portions of each of the concave shaped surfaces shaped to have points with uncommon oculating circles tangent to the points.